Subject: Algebra I\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher(s): Vincent Jones/C.Trumbo/M.Little\_\_\_\_\_\_

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.1.1 Use mathematical language, symbols, definitions, proofs and counterexamples correctly  and precisely in mathematical reasoning. | Translate words and symbols into a mathematical statement. | **mathematical language**- a *sequence* of symbols which can be evaluated and vocabulary in math.  **Symbols**-mathematical operations and variables.  **Definitions**-understanding the meanind of math vocab and symbols.  **Proofs-** a convincing demonstration (within the accepted standards of the field) that some [mathematical statement](http://en.wikipedia.org/wiki/Mathematical_statement) is necessarily true  **Counterexamples** an exception to a proposed general rule  **Mathematical reasoning**-using the rules of mathematics to solve problems. | **Use Precisely**-Accuracy |
| **Critical Vocabulary**  **Symbols**  **Definitions**  **Proofs** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including testing  cases, estimation, and then checking induced errors and the reasonableness of the solution. | **Learn to solve problems and reviewing data to check for comprehension.** Perform straightforward word-to-symbol translations | **Testing**-checking for math proficiency.  **Estimation**- the calculated approximation of a result  **Solution-** A solution, to be a solution, must share some of the problems characteristics- | **Apply-** a function that applies functions to arguments  **Adapt**-Change  **Problem solve**- the mental process of creating a solution to a problem |
| **Critical Vocabulary-**  **Testing**  **Estimation**  **Solution**  **Apply**  **Adapt**  **Problem solve** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.1.4 Move flexibly between multiple representations (contextual, physical, written, verbal,  iconic/pictorial, graphical, tabular, and symbolic), to solve problems, to model  mathematical ideas, and to communicate solution strategies | Draw conclusions based on number concepts, algebraic properties, and/or relationships  between expressions and numbers. | **Contextual-** depending on the context  Physical  Written  Verbal  **Iconic/pictorial**- the use of multiple attributes or features and spatial relationships | **Solve problems**- a mental process and is part of the larger [problem](http://en.wikipedia.org/wiki/Problem) process that includes [problem finding](http://en.wikipedia.org/wiki/Problem_finding) and [problem shaping](http://en.wikipedia.org/wiki/Problem_shaping).    **Model mathematical ideas**-use best math practices to solve analytical problems.  **Communicate solutions**-state clearly the processes that have been taken to get to solutions. |
| **Critical Vocabulary**  Contextual  Physical  Written  Verbal  Iconic/pictorial,  tubular, symbolic) |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.1.5 Recognize and use mathematical ideas and processes that arise in different settings, with  an emphasis on formulating a problem in mathematical terms, interpreting the solutions,  mathematical ideas, and communication of solution strategies. | Students will recognize problems. Formulate solutions and Interpret possible solutions for mathematical equations. | Use mathematical Ideas | R**ecogniz**e-understand what mathematical procedure being dealt with  Formulate- using math formulas piece together the best way to solve issues  Interpret solutions-check for understanding of math equations |
| **Critical Vocabulary**  **Recognize**  **Formulate**  **Interpret Solutions** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.1.6 Employ reading and writing to recognize the major themes of mathematical processes,  the historical development of mathematics, and the connections between mathematics  and the real world. | Recognize and understand the major themes of mathematical processes and make connection to how math relates in real life. Explain the connection by reading and writing. | read and write  major themes: understand major areas of math (number sense, algebra, geometry, measurement, data & statistics)  mathematics  real world. | Employ  recognize  connect |
| **Critical Vocabulary**  **Major themes** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.1.7 Use technologies appropriately to develop understanding of abstract mathematical ideas, to facilitate problem solving, and to produce accurate and reliable models | Use technology to represent problem with various models to assist in the problem solving. | Technology: graphing calculator  problem solve: strategies to solve problem  models: represent problem in various ways. | Use, develop, facilitate produce  Accurate,  reliable |
| **Critical Vocabulary**  **Technology**  **Abstract mathematical ideas.**  **models** |

Subject: Algebra 1 Teacher(s): Jones, Little, and, Trumbo

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.3.1 Use algebraic thinking to analyze and generalize patterns**.** | Use thought processes to discover non specific patterns in Algebra. | **Algebraic Thinking**  **Analyze Patterns**  **Generalize Patterns** | **Use -** the ability to make sense of something. |
| **Critical Vocabulary**  **Algebraic Thinking –** understanding mathematic processes or ideas.  **Analyze Patterns –** means to take apart mathematical patterns to find out how they works.  **Generalize Patterns –** are non specific patterns. |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.2.2 Understand properties of and relationships between subsets and elements of the real number system | Understand how operations behave and how they are compared in subsets and elements of the real number system. | properties  relationships  subsets  elements  system | Understand – the ability to make sense of something. |
| **Critical Vocabulary**  **properties –** are operations that behave on numbers.  **relationships –** are comparisons between two quantities.  **subsets –** arethe relationships of one group being included into a second group.  **elements –** arevalues of a set.  **real number system –** consist of two subsets of numbers, the rational numbers and the irrational numbers. |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| **CLE 3102.3.2 Understand and apply properties in order to perform operations with, evaluate, simplify,and factor expressions and polynomials.** | **Understand how to simplify, evaluate, and factor operations including expressions and polynomials.** | **properties**  **operations**  **evaluate**  **simplify**  **factor**  **expressions**  **polynomials** | **understand -** the ability to make sense of something.  **apply –** means to perform a task.  **perform –** means to do a task. |
| **Critical Vocabulary**  **Properties -** are operations that behave on numbers.  **Operations –** are mathematical terms like add, subtract, multiply, and divide.  **Evaluate –** means to solve an algebraic problem.  **Simplify –** means to write an algebraic equation in its simplest form.  **Factor –** means to get a number in a form where you can easily find the value of it.  **Expressions –** are simply arithmetic operations or symbols that can include variables, numbers, relations, and constants.  **Polynomials –** mean many terms |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| **CLE 3102.3.3 Understand and apply operations with rational expressions and equations.** | **Understand and apply operations with rational expressions and equations** | **operations**  **rational expressions**  **equations** | **Understand -** the ability to make sense of something.  **Apply - –** means to perform a task. |
| **Critical Vocabulary**  **Operations -** are equations that contain variables and numerals.  **Rational Expressions –** are fractions in which the numerator and denominator are polynomials**.**  **Equations –** are expressions with an equal sign. |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| **CLE 3102.3.4 Solve problems involving linear equations and linear inequalities.** | **Solve problems involving linear equations and linear inequalities**. | **solve problems**  **linear equations**  **linear inequalities** | **involving – means being a part of something.** |
| **Critical Vocabulary**  **Solve Problems –** means to find solutions to algebraic expression**.**  **Linear Equations –** are equations with straight lines.  **Linear Inequalities –** expressions that use inequalities instead of the equal sign. |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| **CLE 3102.3.5 Manipulate formulas and solve literal equations.** | **Manage formulas to solve equations involving variables.** | **Formulas**  **literal equations** | **manipulate –** to manage information. |
| **Critical Vocabulary**  **Formulas –** a mathematical rule or principle expressed in algebraic symbols.  **Literal Equations –** are equations in which know quantities are expressed as variables. |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.3.6 Understand and use relations and functions in various representations to solve contextual problems. | Use and understand the cause and effect of relations, the difference of functions and be able to represent them in T-chart, graph, and/or mathematical statement. | relations  functions  various representations contextual problems. | Understand, use, solve . |
| **Critical Vocabulary**  **Relations**  **Functions**  **representations** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.3.7 Construct and solve systems of  linear equations and inequalities in two variables by  various methods. | Find the one solution that is in common with the two or more equations/inequality using various methods | systems of linear equations: two or more equations with one common solution inequalities: greater than or less than  two variables | Construct  solve systems of linear equations and inequality |
| **Critical Vocabulary**  **Systems of equations/inequalities** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.3.8 Solve and understand solutions of quadratic equations with real roots.  CLE 3102.3.9 Understand and use exponential functions to solve contextual problems. | ■ Identify solutions to simple     Quadratic equations  ■ Add, subtract, and multiply     polynomials\*  ■ Factor simple quadratics (e.g.,     the difference of squares and     perfect square trinomials)\*  ■ Solve first | **Quadratic Equations-** a polynomial equation of the second degree. The general form is. ax^2+bx+c=0  **Polynomials-** an expression consisting of the sum of two or more terms each of which is the product of a constant and a variable raised to an integral power  **Quadratics-** the branch of algebra that deals with quadratic equations  **Trinomials-** expression that is a sum or difference of three terms, as 3*x* + 2*y* + *z* or 3*x*3 + 2*x*2 + *x* | * . Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★   + a. Factor a quadratic expression to reveal the zeros of the function it defines.   + b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. |
| **Critical Vocabulary**  **Quadratic equations**  **Polynomials**  **Quadratics**  **Trinomials** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.4.1 Use algebraic reasoning in applications involving geometric formulas and contextual problems. | TSW solve geometric problems and word problems using formulas | CLE 3102.4.1 algebraic reasoning: use the rules of algebra  Geometric formulas: apply the following formulas to solve problems of: area, perimeter, volume, angles, etc. | CLE 3102.4.1 Use, reasoning, apply, geometric |
| **Critical Vocabulary**  **Algebraic reasoning and geometric formulas.** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.4.2 Apply appropriate units of measure and convert measures in problem solving situations. | Use units of measure and be able to change from given measurement to requested measurement. | Units: given type of measurement,  Measurement: distance between two points  problem solve: solve given problem | Apply convert measure |
| **Critical Vocabulary**  **Unit, Convert, measurement** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.5.1 Describe and interpret quantitative information. | Understand and explain numerical data given in different types of charts and graphs. | Quantitative information: numerical information given in a chart or graph. | Describe  Interpret. |
| **Critical Vocabulary**  **Quantitative information** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.5.2 Use statistical thinking to draw conclusions and make predictions. | Use numerical data and central tendency (mean, median, mode, range, quartiles) to make decisions based on the data and to make an educated guess of what will happen in the future based on the numerical data. | Statistical: is the study of the collection, organization, and interpretation of data conclusions: come to a summary of what data means predict: make an educated guess based on data of an event that will happen in the future. | Use  thinking  draw  make |
| **Critical Vocabulary**  **Statistical**  **Predict**  **conclusions** |

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| **Standard**  **(State, Common Core, and ACT)** |  | | |
| **Student Target**  **(use student friendly language)** | **What students need to know (noun)** | **What students are to be able to do (verb)** |
| CLE 3102.5.3 Understand basic counting procedures and concepts of probability | Understand and use counting principles and probability. | Counting procedures: basic counting principles of factorials and number of possibilities of a given set probability: odds of a given event to occur. | Understand |
| **Critical Vocabulary**  **Counting principles**  **probability** |